

ON A NEW SPECIES OF MITE (*TARSONEMUS*) INJURIOUS
TO SUGAR-CANES IN BARBADOS.

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Mr. A. D. Michael has already recorded* the presence of mites of the genus *Tarsonemus* upon diseased sugar-cane from Barbados. He states that two species belonging to this genus were present in the material sent to him, and that the larger of the two species was certainly identical with one which Mr. Bancroft found doing serious damage to sugar-cane in Queensland. Mr. Michael proposed the name *Tarsonemus bancrofti* for this larger species. So far as I am aware, no description of this nominal species has been published and I am obliged to rely on Mr. Bancroft's published sketches† for information concerning it. Unfortunately his drawings are not executed in sufficient detail and I am not certain that his mite is the same species as the one which is dealt with in the present note; but as the figures of the Queensland mite differ appreciably from the Barbados specimens, it seems advisable to describe the latter under another name (*T. spinipes*). The species of the genus *Tarsonemus* often resemble one another very closely in structure, and they cannot be recognised with certainty unless a fully detailed account of their principal characters, accompanied by careful drawings, is given. Dr. Bancroft gives drawings of both sexes of his mite. He does not figure any spines on the third leg of the male, but he shows a lobe-shaped expansion, similar to that of *T. spinipes*, on the inner side of the short fourth leg. The hairs of the body are not depicted. According to his drawings, the body of the female resembles that of *T. spinipes* in being very long and narrow, but is apparently much narrower at the anterior end. He represents the two terminal setae of the fourth leg of the female as being both very long and slender, the outer one being seemingly almost as long as the inner. The size of *T. bancrofti* is not stated, nor is the scale of enlargement of the figures given.

I wish to express my thanks to Mr. G. A. K. Marshall, the Scientific Secretary of the Entomological Research Committee, for his kindness in giving me the opportunity of describing this interesting acarus. The specimens were kindly sent by Mr. John R. Bovell, Superintendent of the Local Department of Agriculture, Barbados. It is interesting to note that the species which were mentioned in Mr. Michael's paper twenty-two years ago were also received from Mr. Bovell.

***Tarsonemus spinipes*, sp. n.**

♂.—Shape of *body* (fig. 1 *a, b*) very like that of *T. spirifex*, Marchal. *Dorsal surface* apparently furnished with the same number of hairs as in the species just mentioned, but they differ somewhat in size and also in arrangement. Four pairs

* Bull. Royal Gardens, Kew, 1890, pp. 85–86.

† 2nd Annual Report of the Board appointed to inquire into the causes of Diseases affecting Live Stock and Plants; Votes and Proc. of the Legislative Assembly, Queensland, 1877, Vol. III, pp. 1037–1062.

of hairs occur on the upper surface of the "cephalothorax"; the first two pairs are not very long and they are placed closer together than the hairs of the posterior pairs; the hairs of the third pair are very long and fine and those of the fourth are fairly long. "Abdominal" part of body furnished dorsally with three pairs of hairs; the hairs of the first pair being long, but the others considerably shorter. A minute hair is also present on each side of the conical sexual organ at the posterior end of the body.

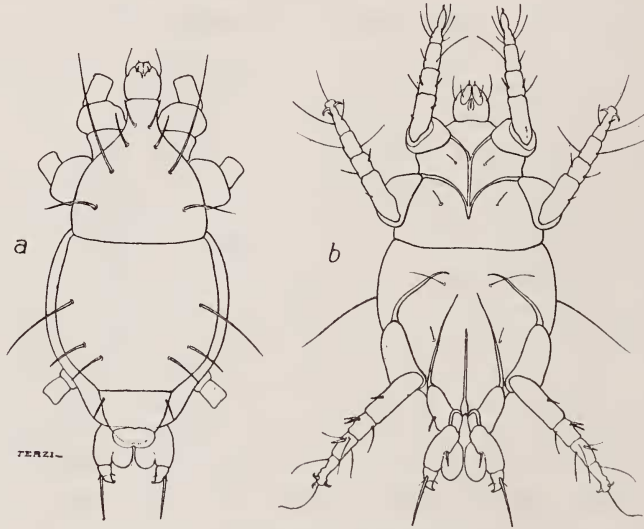


Fig. 1. *Tarsonemus spinipes*, Hirst, ♂ ;
a, dorsal view ; b, ventral view.

Capitulum about as broad as long; on each side it has a long curved hair, the terminal part of which is exceedingly fine. *Palpi* minute and placed on the ventral surface of the capitulum. Each palp has a small hair near the proximal end and another very minute hair at the distal end also.

Legs: basal segments of anterior legs much enlarged, as in *T. spirifex*. Anterior legs furnished with hairs and a few minute spines. In addition to hairs, the third leg has several well developed spines on its anterior surface—a slender antero-ventral spine being present on the femur, two strong spines on the patella, and a single strong spine on the tibia. Fourth leg much reduced in length and strongly modified. On the inner side, it has a large, but very thin lobe, and a short, but distinct, ventral spine is situated at the point at which this membranous lobe joins the limb. A strong and fairly long spiniform bristle is present near the claw-like distal end of this leg.*

Length of male .2 mm.

* The last leg of the male of *T. hominis*, Dahl, is armed with two bristles, which are apparently placed in the same positions as the spine and bristle of this leg in *T. spinipes*. Prof. Dahl does not figure any lobe on the inner side of this leg, but his drawing is based on photographs, and this delicate membranous structure probably would not be shown distinctly in a photograph.

♀.—*Body* very long and narrow (fig. 2); when viewed from above, six segments are visible, but the last one is small. There is only one pair of very long hairs on the body and it is situated on the upper surface of the first segment (cephalothorax). Two pairs of hairs, of moderate length, are present on the second segment, those of the inner pair being stouter than those of the outer. The few hairs which occur on the remaining segments of the body are short and

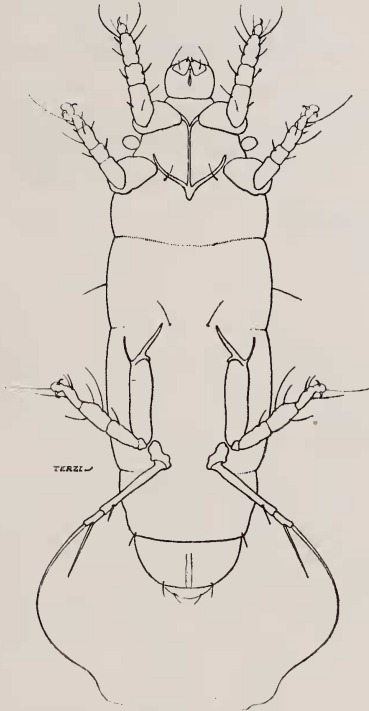


Fig. 2. *Tarsonemus spinipes*, Hirst,
♀, ventral view.

fine. *Legs*: segments of first leg four in number, not including the coxa; second leg apparently with five segments, not including the coxa. Posterior legs very like those of *T. spirifex*; tarsus of third leg somewhat bent. Penultimate segment of fourth leg long and furnished with a spiniform seta of moderate length near the apical end; the last segment of this leg, as usual, has two setae at the end, the outer one being fairly long and the inner one very long and fine.

Length of female .35 mm.

Larva: as is the case in *T. spirifex*, the shape of the body of the male larval form is very different from that of the female larva, a strong constriction being present at a short distance from the posterior end. The size of the larva of this sex is much less than that of the female larva.

This new species of *Tarsonemus* is very closely allied to *T. spirifex*, Marchal—a European species which attacks oats. The male seems to differ from that of *T. spirifex* chiefly in having spines on the third leg, and the female differs principally in shape, its body being long and narrow.

The following note on this sugar-cane mite was made by Mr. W. Nowell, Entomologist to the Local Department of Agriculture, Barbados:—"Causes small red blisters on the surface of the young internodes of sugar-cane while still in the sheathing canes, which are also to some extent affected. Results in a reddish brown corroded appearance of the surface of the cane, especially a streak above the eye."

In the Kew Bulletin for 1890, p. 88, the following method of dealing with canes which are affected by the disease (Red Rust) caused by these *Acari* is recommended. "1. Clean the joints entirely from all trash as carefully as possible. 2. Immerse for 24 hours in water and carbolic acid at temperature to bear the hand,—1 lb. of acid to 50 gallons of water. 3. Make milk of lime,—2 lbs. of lime to 1 gallon of water; immerse the plants in this for a few minutes. 4. Lift out and spread in the sun, turning them over to dry for one day before planting." Infected *débris* should be burned.